



# Modus

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ACARE WG1, January 27, 2021

**Modus**



Founding Members



This project has received funding from the SESAR Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 891166.

# Agenda



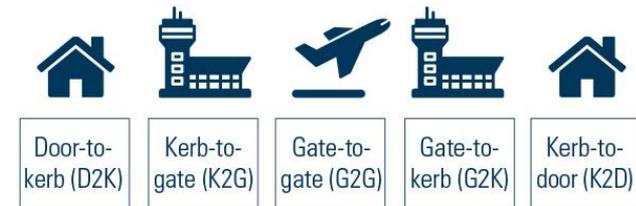
Modus Project Overview

Modus Expert Survey Results

# Moving towards a Multimodal European Transport System

Manifold challenges ahead!

- Enabling a **seamless passenger journey**, including multiple providers and information
- Meeting **environmental goals** and facilitating a sustainable transport system
- Identifying and developing **new business models** that enable a multimodal transport system
- Tackling the **implications and changes** resulting from **COVID-19**
- Rethinking the use of current **infrastructure** and future challenges
- ...



Passenger travel chain from door to door



#### Societal trends

- Pressure from civil society for climate change mitigation
- Natural disasters are increasingly interpreted as results of climate change.

#### Changing awareness among passengers

- #Flygskam (no flights in 2020)
- Fridays for Future
- Increasing "carbon conscience"

#### Changing behaviour?

- Value-action gap: Passengers fly despite concerns about their emissions.
- Willingness to pay for own emissions remains low.

## FACTS & FIGURES

PROJECT BUDGET

**1.52 M€**

EU CONTRIBUTION

**0.99 M€**

DURATION

**30 MONTHS**

**01.06.2020**

TO

**30.11.2022**

GRANT AGREEMENT

**N° 891166**

**7 PARTNERS**

FROM

**5 COUNTRIES**

PROJECT COORDINATOR

**BAUHAUS LUFTFAHRT**

WORK PROGRAMME

**H2020-SESAR-2019-2**

# Modus Project Consortium



Bauhaus Luftfahrt (BHL) – coordinator



Ecole Nationale de l'Aviation Civile (ENAC)



University of Westminster (UoW)



Innaxis (INX)



International Union of Railways (UIC)



Skymantics (SKY)



EUROCONTROL (ECTL)



The high-level objective of Modus is to analyse how the **performance of the overall transport system** can be optimized by considering the entire **door-to-door journey** holistically and considering **air transport within an integrated, intermodal approach**.

## Understand

in a better way how ATM and air transport can better contribute to improve passengers' intermodal journeys and how this translates into an enhanced performance of the overall transport system

## Explore and model

the connection and dependence between ATM/ air transport and other transport modes, with a special focus on the interplay between short and medium air and rail connections

## Identify

the main barriers in achieving European (air) mobility goals and how air transport can evolve by efficiently connecting information and services with other transport modes to achieve the 4 hours door-to-door goal and a seamless journey experience for passengers.

# Modus Expert Survey

- Capture the expertise of various experts from different transport sectors
- Identify possible futures for European travelers
- Outline factors with the most influence on the evolution of travel

Expert survey

Modus goal:  
Identification of future drivers of demand and supply

Literature review

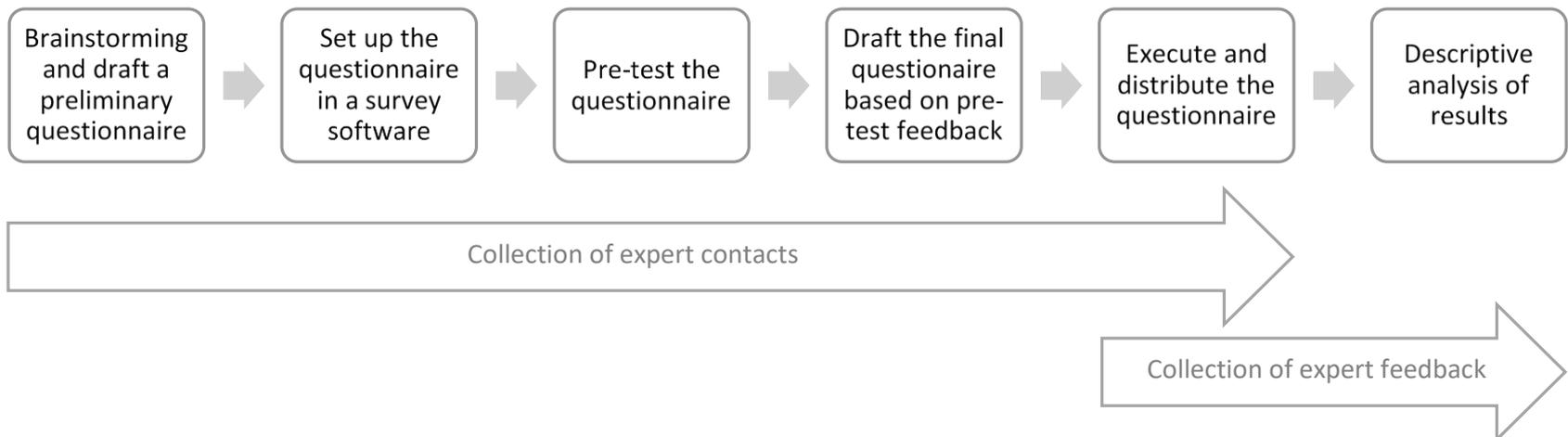
Mode choice modelling

- Identify the drivers of future demand and supply
- Depict factors defining future multimodal journeys

- Identify the impact of passenger behavior and preferences on modal choice
- Impact on modal market shares

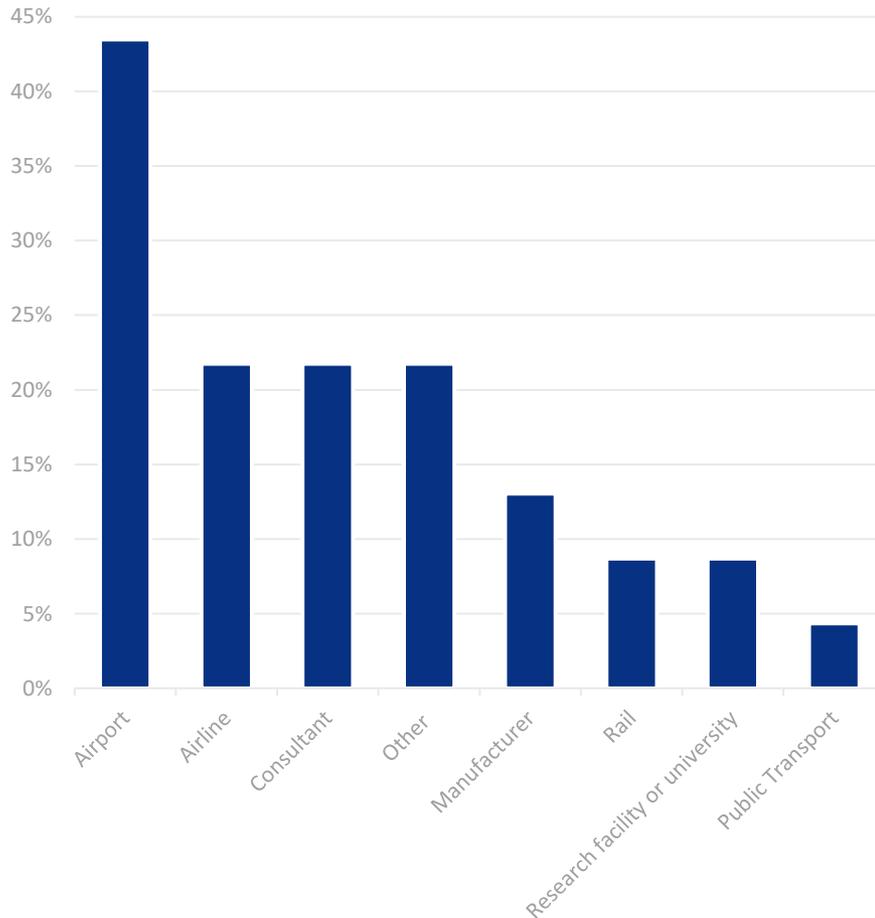
# Survey Approach

- Data collection period: **October – November, 2020**
- Total responses: **35** subject matter experts
- Survey completion rate (all questions answered): **63%** (22/35)
- Typical time spent: **20 min.**
- Results are analyzed based on the completed responses of each question
- Focus is on **travel segments within Europe** as part of a multimodal journey with **time horizon of 2040+** (i.e. well beyond the current COVID-19 crisis)

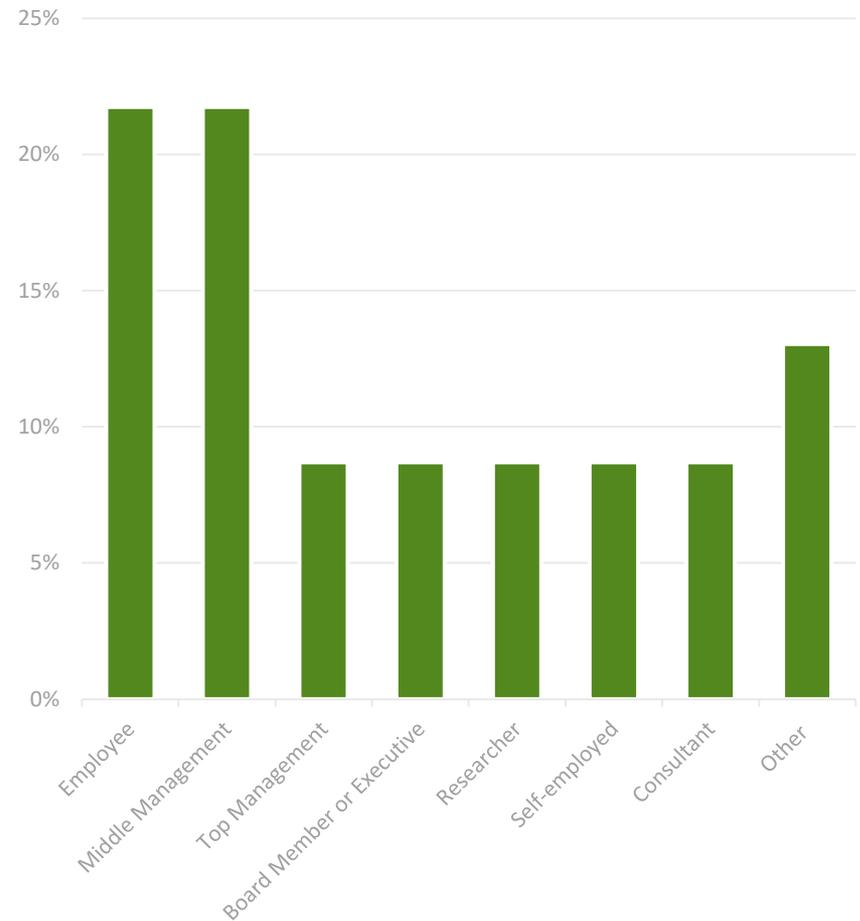


# Overview Demographics (1/2)

## Industry / transport mode



## Working Position



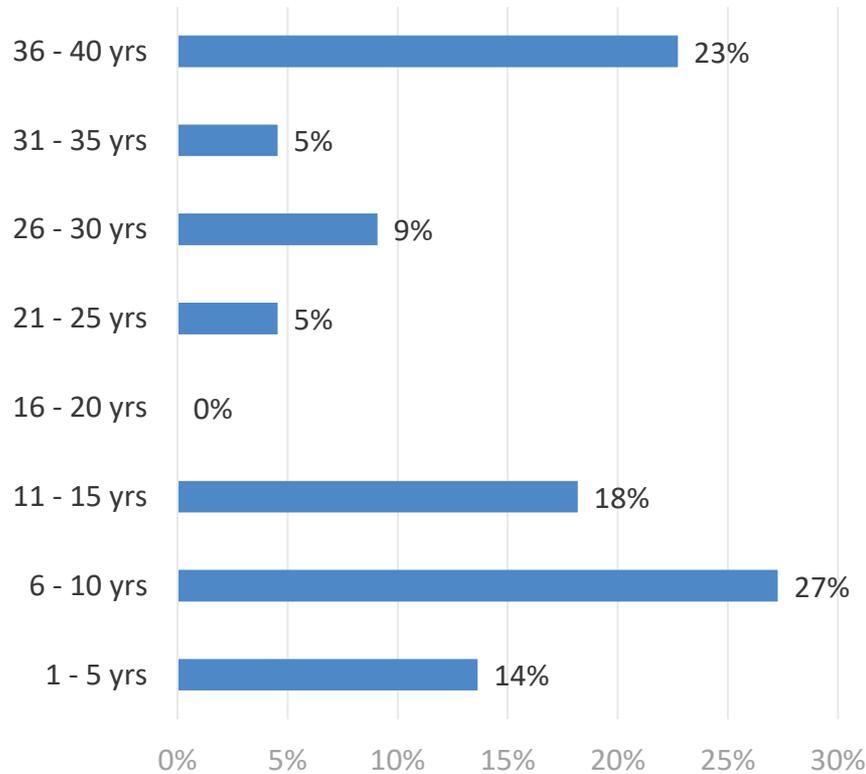
<sup>1</sup>Others: large trade association, travel and tourism; advocacy group; NGO; aeronautics industry; transport distribution

<sup>2</sup>Six respondents (6/23) have selected more than one category of industry/transport mode. Therefore, the total percentage is over 100%.

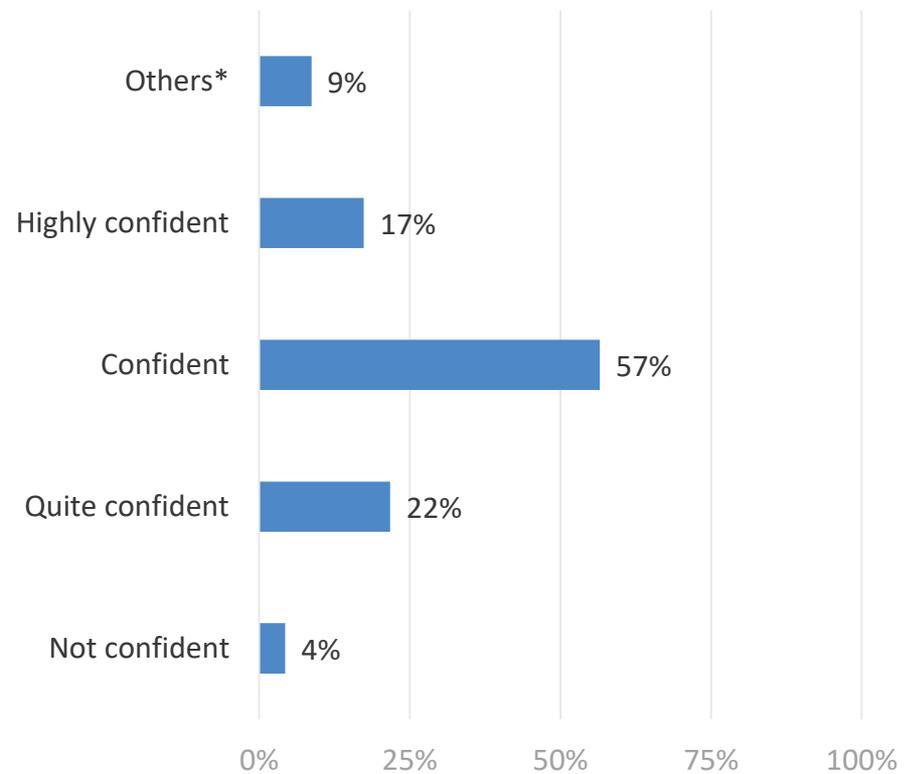
<sup>3</sup>Others: volunteer; research funding authority; management & expert

# Overview Demographics (2/2)

## Years of experience



## Expertise self assessment



# Driver Assessments

## Recap

- Assessment of social, technological, economic, environmental and political factors (known as STEEP)

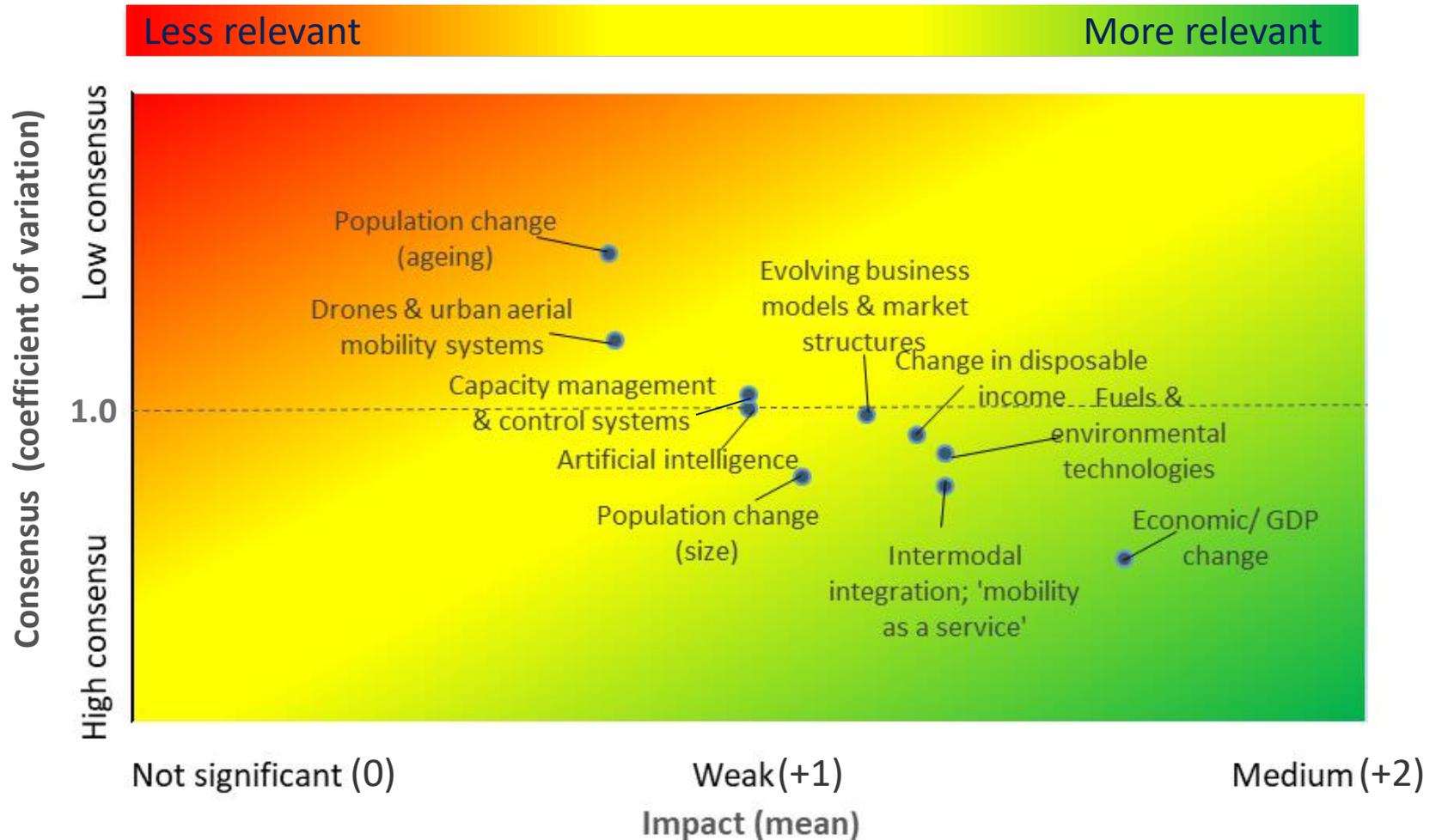
	2040 SUPPLY Air travel	2040 SUPPLY Rail travel	2040 DEMAND Air travel	2040 DEMAND Rail travel
Population change (size) (e.g. higher birth rates; greater life expectancy)	◄	◄	◄	◄
Population change (ageing) (e.g. changing age distribution; persons with reduced mobility)	◄	◄	◄	◄
Immigration (e.g. into Europe)	◄	◄	◄	◄
Urbanisation (e.g. more people living in urban/ suburban areas)	◄	◄	◄	◄
Change in tourism				

Driver effect:

+3 = strong increase  
 +2 = medium increase  
 +1 = weak increase  
 0 = no significant effect  
 -1 = weak decrease  
 -2 = medium decrease  
 -3 = strong decrease  
 n/a = don't know / cannot make an assessment

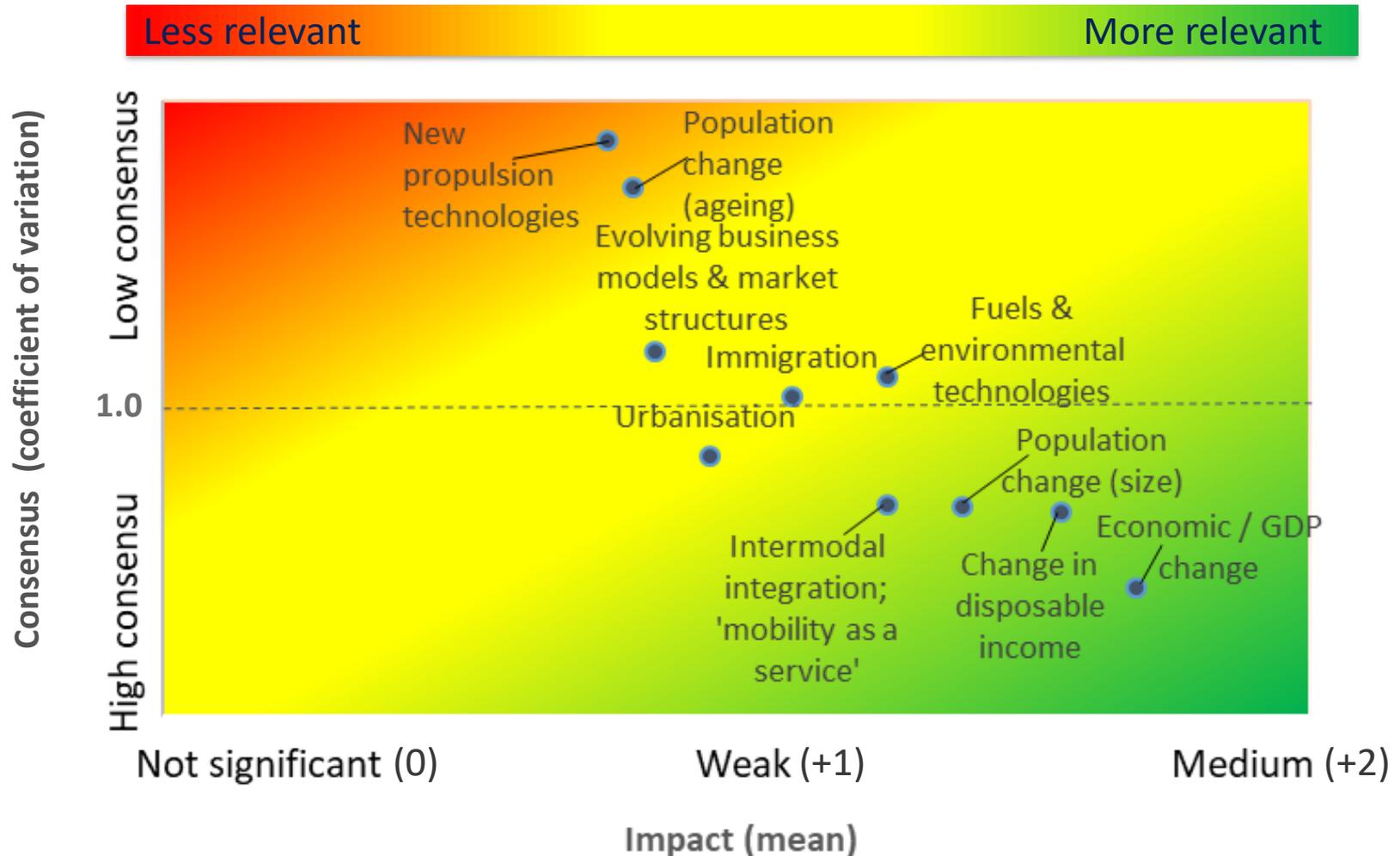
# Top Drivers

## Air Travel Supply

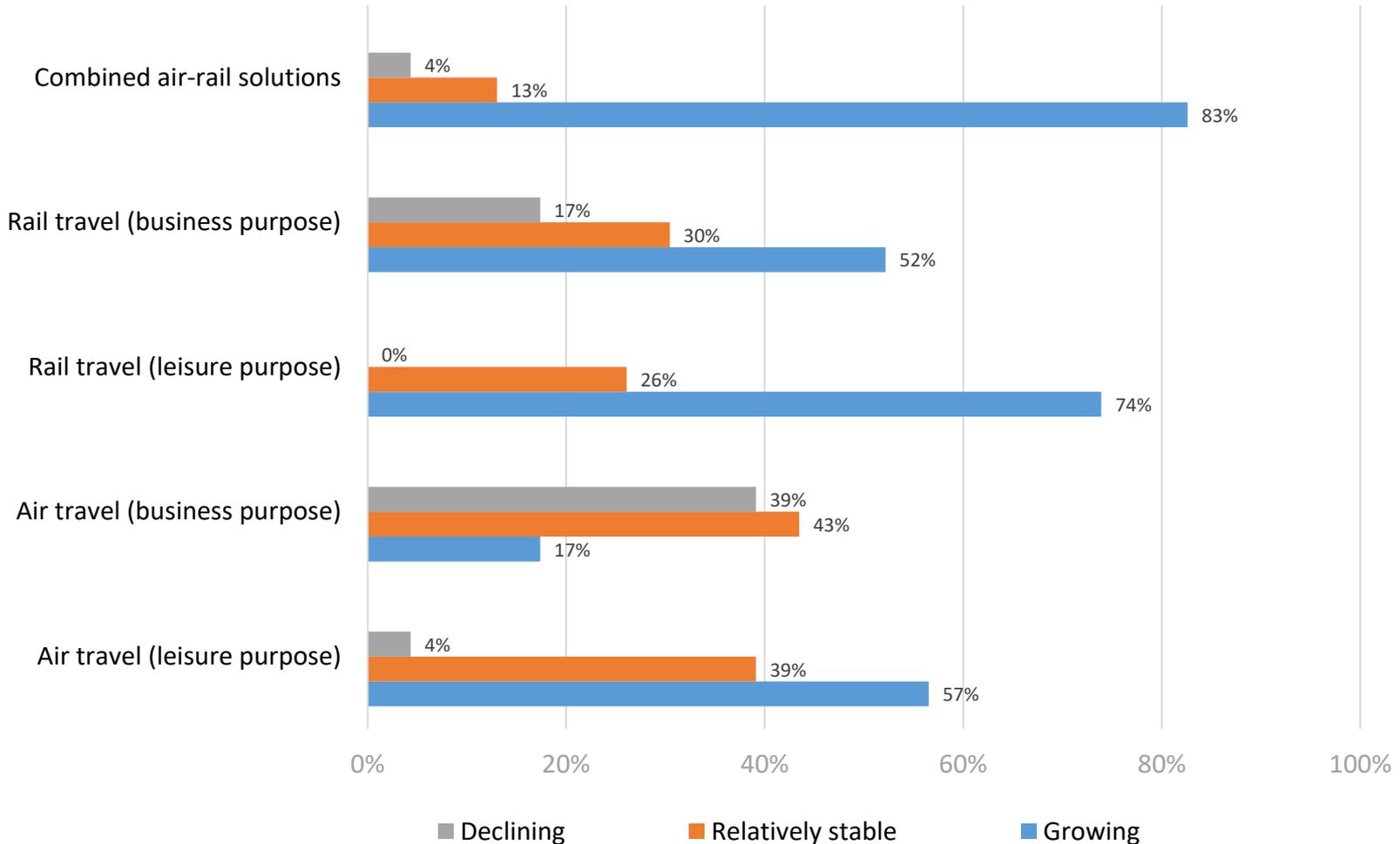


# Top Drivers

## Air Travel Demand

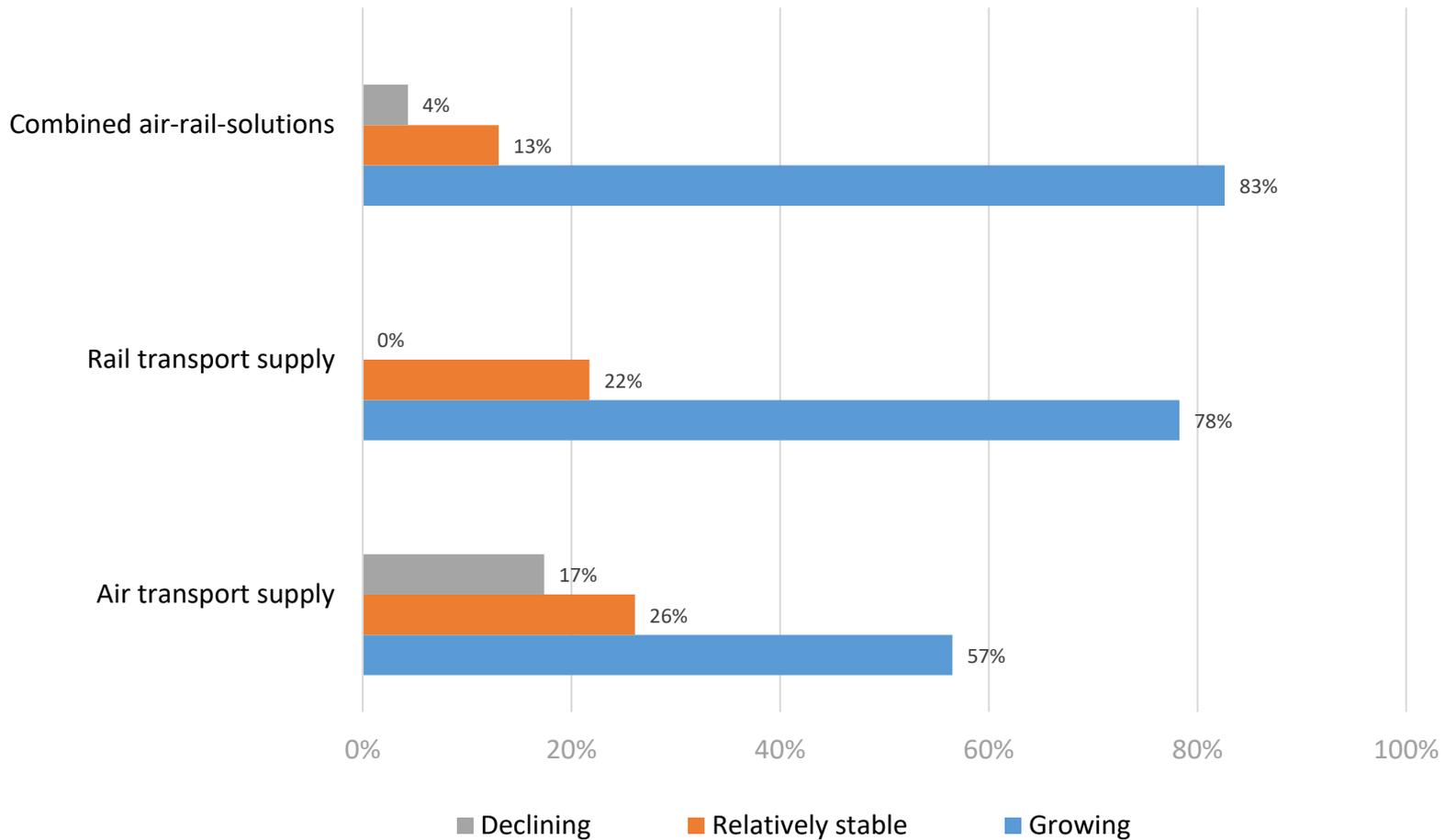


# Future Demand Air and Rail Travel by 2040



# Future Supply

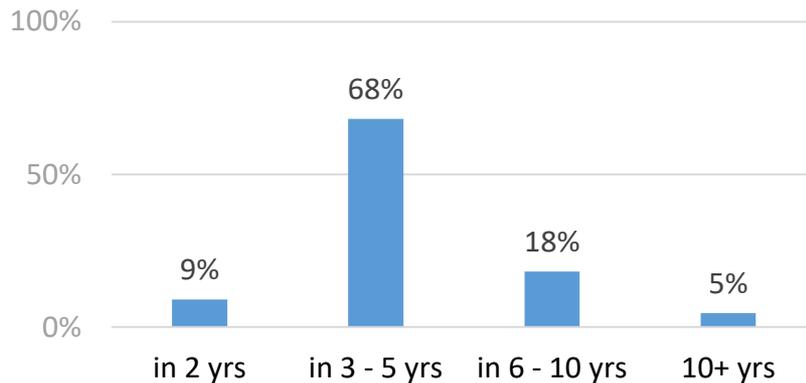
## Air and Rail Travel by 2040



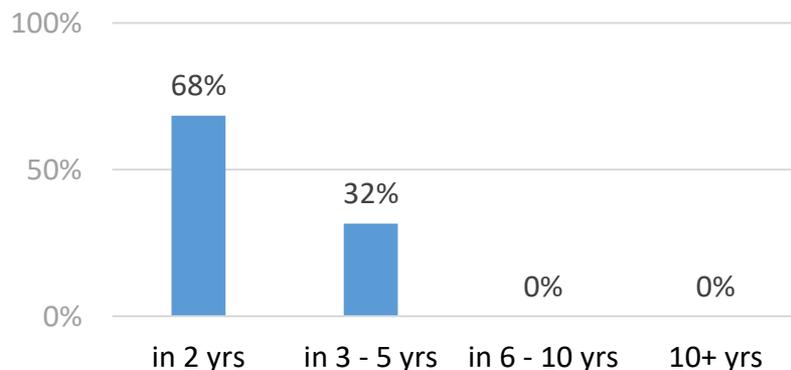
# Long-Term Impact of COVID-19

## Future Air & Rail (1/2)

When will **air traffic** recover and reach pre-COVID-19 levels?



When will **rail transport** recover and reach pre-COVID-19 levels?



Drivers Recovery (Air & Rail)

air binding business carbon-neutral clear  
 climate-neutral common communication  
**confidence** contanination covid  
 decline distance drive economic efficient  
 emission european example framework guidelines  
 immigration infectuous kpi mandatory measures  
 mitigation otherwise **passenger** predictive procedures  
 propulsion quarantinst **recovery** region  
 regulations requirements restrictions root rules  
 separation strict sustainable **tests** transport  
 travel trust **vaccination**  
 widespread worldwide

# Long-Term Impact of COVID-19

## Future Air & Rail (2/2)

### Aspects or areas in the **air transport** sector that will be most affected in the next 10 years

- **Travel by distance:**
  - Short haul/intra-European trips (incl. price), routes with land transport as alternative
  - Inter continental trips, long-range flights for leisure/holiday reasons
- **Travel by purpose:** business, leisure, first
- **Airline business models and revenue** (due to less business travelers; impossible to use all seat capacity)
- **Cabin crew and staff** (staff costs which can be saved by using new technologies and digital solutions)
- **Airport transit time**
- **On-board and border control regulations** (e.g. masks)
- Public health (e.g. pax protection against infection)
- Global economic and political instability
- **Environment** (transition to green aviation) and sustainability
- **Travel mode preferences** (e.g. prefer rail to air → air demand drop)
- **Communication technology**

### Aspects or areas in the **rail transport** sector that will be most affected in the next 10 years

- **Local and regional trips;** international connections
- **Travel by purpose:** business, leisure, freight
- **Demand drop** (people will continue to work more days at home)
- Recovering the pre-COVID levels. Being able to compete with aviation in 500km or more trips; Demand will increase more quickly than supply, (regulatory change – increased support for rail)
- Inter-modality
- Seat capacity
- Punctuality
- **High-speed rail** (slow evolution of network)
- **Pax protection**
- **Digitalisation**
- **Travel retail**
- Global economic and political instability (inducing a preference for intra-EU travel)
- Travel mode preference (due to increased environmental awareness)
- **Environment**

# Next Steps

- Discussion of enablers for a multimodal European transport system in Modus workshop on January 19
- Next activities focus on
  - Mode choice modelling to identify potential future market shares
  - Modelling activities to determine impact of (air) transport capacities
  - Investigation of use cases
- Learn more in our next deliverable (March 2021)

# Modus Contact Details



If you have any questions or like to learn more about Modus:

## **Modus Website**

<https://modus-project.eu/>

## **Modus Twitter**

@Modus\_project

## **Modus LinkedIn**

<https://www.linkedin.com/company/moduseuproject/>

## **Modus Coordinator**

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# Thank you very much for your attention!



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**Modus**

Stay in touch with us [www.modus-project.eu](http://www.modus-project.eu)

[#modus\\_eu](https://twitter.com/modus_eu)



Founding Members



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